

REMARKS

Claims 1-27 are presented for examination. Claim 4 is amended. Claims 24-27 are new. No claims are cancelled.

Claim 4 is amended as to matters of form.

New claim 24 is similar to current claim 21, but addresses limitations shown at least in steps 201 and 210 of Fig. 2.

New claim 25, depends from claim 24, and adds limitations shown at least in step 215 of Fig. 2.

New claims 26 and 27 are method claims addressing similar limitations as new claims 24 and 25, respectively.

Claims 1-23 were rejected in view of Akiyama and Fukano. Specifically, the Office Action notes that Fukano discloses the use of parameters m and n, which can be pre-selected, and which indicate what process is executed when a printer returns back on-line following an off-line state without communicating with an external apparatus.

Applicants respectfully point out that the claims do not only specify how a printer in accord with the present invention determines whether to clear its receive buffer, but also specifies *when* to clear its buffer. Fukano, like the other cited references state that its receive buffer may be cleared when returning back on-line (i.e. "resume operation") after having been off-line (Abst. lines 5-10; col. 2, lines 24-28; col. 3, lines 39-43; col. 3, lines 57-61; col. 5, lines 59-62; col. 8, lines 23-29). In other words, Fukano explain how to select an appropriate "resume operation" following the end of an off-line period.

By contrast, claims 1, 8, and 21 all specify that the printer clears its receive buffer in response to the printer entering the first state (i.e. the off-line state). Thus, the present invention requires that if the receive buffer is going to be cleared, then it should be cleared upon entering the first state, as opposed to

the prior art, which teach clearing the receive buffer upon leaving the off-line state, or some time later as determined by a command from the host computer.

A reason why the timing of the clearing of the receive buffer is important is that the present invention seeks to prevent a problem that sometimes develops while the printer is off-line. That is, even while a printer is "off-line", it is still responsive to the host computer. The host computer can continue to not only send print data, but to also send commands and status requests. Therefore, it is possible that the printer's receive buffer will get full, which would result in a "busy state" that would effectively cut-off communication between the printer and the host computer. If this should happen, then the host computer will not be able to send commands to the printer until the printer's receive buffer is cleared. If this should happen with the prior art printers that require a command from the host computer to clear their buffer, then the printer will not receive the clear buffer command from the host computer and physical user intervention for clearing the buffer (i.e. manually resetting the printer) is required to re-establish communication with the host computer. Alternatively with the Fukano reference wherein the receive buffer is cleared upon leaving the off-line state, communication would be automatically re-established, but the printer would have remained ignorant of any commands the host computer might have sent it while its receive buffer was full. This is briefly explained at least in page 14, lines 9-18 of the present application.

Thus, since the present invention requires that the printer clear its received buffer in response to entering its off-line state, it is assured that its receive buffer is empty at the beginning of the off-line state period (this is emphasized in Claim 9). The present invention also explains that real-time commands received while in the off-line state are immediately executed while received print data may be either stored or discarded, depending on prior setting. In this manner, it can be assured that the receive buffer does not get full, even if a large print file is sent to the printer while it is off-line. This is emphasized in claim 12, wherein it specifies "discarding data received from a host computer after said receive buffer was cleared in step (b) and until step (a) detects said second state".

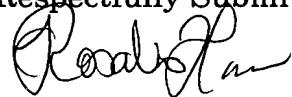
Furthermore, since in the present invention the printer can decide for itself whether to clear its receive buffer, or not, upon entering its off-line state, the present invention further addresses the issue of how the host computer should interact with the printer. That is, in the present invention, the host computer may or may know whether the printer has cleared its received buffer and thus the host computer may not know if print data it sent to the printer has been printed or discarded by the printer. Fukano appears silent on this issue.

However claims 19 and 20 of the present invention state that the host computer determines whether to resend print data following recovery from an off-line state by the printer by observing a sequence of status signals from the printer. Claims 19 and 20 require that the host computer append a "printing completed command" requesting that the printer notify the host computer when printing of currently transmitted print data is completed. As it would be understood, the printer may require a varying amount of time to respond to this request since the printer sends its response only after completing a printing sequence. Thus, the present host computer does not rely on a time delay to determine if its currently sent print data was discarded or printed. Rather, the host computer monitors the on-line/off-line status of the printer. If the host computer observes an off-line status from the printer, while it had been waiting for notification of completion of printing, then the host computer of the present invention determines that the printer probably cleared its print buffer and thus automatically resends its print data when the printer returns back on-line. Otherwise, the host computer does not resend the print data following the return back on-line of the printer.

None of the cited prior art teach or suggested a conditional resending of print data by the host computer based on the sequence recited in claims 19 and 20.

Applicants request reconsideration in light of the amendments and remarks made herein.

Respectfully Submitted,



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